

Psychological Morbidity Status Among the Rural Geriatric Population of Tamil Nadu, India: A Cross-sectional Study

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ABSTRACT

Background: Mental health problems like depression, cognitive impairment, anxiety, sleep disorders, and so on, arising out of senility, neurosis, and living conditions are common in the geriatric population. **Aims:** To study the psychiatric morbidity among the rural elderly. **Settings and Design:** A community-based, cross-sectional study. **Materials and Methods:** A study was conducted on 800 rural elderly subjects, aged 60 years and more, living in ten randomly selected villages, served by the Rural Health Training Center (RHTC), Valadi, in Tamilnadu state, India. Cognitive functioning was assessed by the Mini Mental Status Examination (MMSE), and the depression by the Geriatric Depression Scale — Shorter version. **Statistical Analysis:** The data was analyzed with SPSS 16 version statistical software using proportions, and the chi-square. **Results:** A majority of the subjects were widows / widowers, illiterates, living with family, and showing economic dependency. The prevalence of cognitive impairment was 43.25%, with a mean MMSE score of 23.32 ± 4.4 , and the depression was 47.0% and 6.16 ± 3.4 . Cognitive impairment, depression, and a disturbed sleep pattern were associated with female sex, age, illiteracy, poverty, loneliness, and the low socioeconomic status of the family. **Conclusions:** The study showed a definite association between the sociodemographic factors and psychiatric morbidity. Encouraging the Non-governmental Organizations (NGOs) working for the elderly, running of separate geriatric clinics, and effective implementation of schemes like old age pension are some of the measures to be taken.

Key words: Cognitive impairment, depression, geriatric, mini mental status examination

INTRODUCTION

Emergence of nuclear families, increased cost of living, and change in priorities of a family has adversely affected the elderly in India. Senility, poor health,

widowhood, dependency, helplessness, and low self-esteem are the risk factors that influence both the extent and severity of mental morbidity and quality of life. Nearly four million Indian elderly are mentally ill.^[1] Psychiatric morbidity, which increases with age is more prevalent in the geriatric (43.32%) than in the non-geriatric group (4.66%).^[2] Prevalence of depression, the most common problem, ranges between 13 and 22%.^[3] Aging declines the cognitive functioning due to senile changes. If the goal of 'Health for All' is to be achieved, policy makers and administrators must pay more attention to various issues of this group. In this context, the present study focuses on important mental health problems like cognitive impairment, depression,

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and sleep pattern abnormalities, to provide some insight into future studies.

MATERIALS AND METHODS

A community-based, cross-sectional study was conducted between June 2011 and January 2012 among 800 rural elderly subjects, aged 60 years and above (400 males and 400 females selected by proportionate sampling technique), living in ten randomly selected villages under the field practice area of RHTC, in the Tamil Nadu state of India. Eight hundred was the sample size calculated, as the minimum prevalence of morbidity among the elderly population was 35.0%, with 10.0% precision.

Folstein's Mini Mental Status Examination^[4] scale was used to assess subject's cognitive functioning, in terms of orientation (time and place), attention, memory power, and literary ability. Based on the score (maximum: 30), the subjects were graded as normal (≥ 24), mild (20–23), moderate (10–19), and severely impaired (< 10).

Yesavage's Geriatric Depression Scale — Shorter version,^[5] a 15-question instrument, was used to assess whether (> 5) or not (≤ 5) a subject was having

depression, based on the scores. The subjects were categorized as Depression Absent (≤ 5) or Present (> 5). Sleep pattern among the subjects was categorized as 'normal' or 'disturbed' (difficulty in falling asleep, reduced duration, and poor quality of sleep).

RESULTS

The majority (48.75%) were in the 60 to 69 years age group. In the ≥ 80 years age group, females (20.5%) outnumbered the males (14.5%). The overall prevalence of widowhood and illiteracy was 50.2 and 62.8%, respectively, far higher among females (67.5 and 80.5%) than males (33.0 and 45.0%) [Table 1]. The majority is currently not in any occupation (77.5%), belong to the middle (57.75%) and lower classes, including Below Poverty Level (BPL) (40.25%), and are financially dependent, partially (12.25%) or totally (40.75%); 13.75% are totally neglected by their children and are living alone.

The overall prevalence of cognitive impairment is 43.25%, more among females (51.5%), ≥ 80 age group (68.6%), illiterates (63.4%), and subjects of the lower class, including BPL (61.5%). Among females, the MMSE score is lesser (22.03 ± 3.92) than even the overall score (23.32 ± 4.4) [Table 2].

Table 1: Sociodemographic profile of study subjects

Variable	Category	Male no. (%)	Female no. (%)	Total no. (%)	Statistical significance
Age group (in years)	60 – 69	170 (42.5)	220 (55.0)	390 (48.75)	
	70 – 79	172 (43.0)	98 (24.5)	270 (33.75)	
	> 80	58 (14.5)	82 (20.5)	140 (17.5)	
Marital status	Married	266 (66.5)	128 (32.0)	394 (49.3)	$\chi^2=47.6$ (S)
	Widowed	132 (33.0)	270 (67.5)	402 (50.2)	
	Divorced	02 (0.5)	02 (0.5)	04 (0.5)	
Literacy status	Illiterate	180 (45.0)	322 (80.5)	502 (62.8)	$\chi^2=68.46$ (S) $P < 0.0001$
	Primary	86 (21.5)	62 (15.5)	148 (18.5)	
	Secondary	106 (26.5)	16 (4.0)	122 (15.2)	
	Higher secondary and above	28 (7.0)	00 (0.0)	28 (3.5)	
Living arrangement	Alone	110 (13.75)			
	With spouse / children	646 (80.75)			
	With others	44 (5.5)			
Current occupation	None + housewife	288 (72.0)	326 (82.5)	614 (76.75)	$\chi^2=5.74$ (S) $P < 0.05$
	Skilled + unskilled	110 (27.5)	72 (18.5)	186 (23.25)	
Socioeconomic status	Upper	16 (2.0)			
	Middle	462 (57.75)			
	Lower + BPL	322 (40.25)			
Economic dependency	Independent	376 (47.0)		S= $P < 0.001$	
	Partially dependent	98 (12.25)			
	Totally dependent	326 (40.75)			
Status of the subject in the family	Respected and consulted	242 (30.25)		S= $P < 0.005$	
	Looked after well	322 (40.25)			
	Just looked after	126 (15.75)			
	Neglected	110 (13.75)			

S - Significant; (N=800)

The overall prevalence of depression was 47.0%. It was more among females (56.5%), illiterates (58.9%), ≥ 80 age group (54.3%), lower social class (72.7%), those living alone (87.3%), physically dependant (80.0%), and financially dependent (63.3%) subjects. Females had a higher mean score of depression (6.80±3.10) than the overall mean score (6.16±3.40) [Table 3].

Disturbed sleep pattern (36.0%) was slightly higher among females (39.0%) than males (33.0%), was seen mainly in the ≥ 80 age group (61.4%), lower class, and

BPL (45.3%), and those living alone (43.6%) or with others (50.0%) [Table 4].

DISCUSSION

The present study revealed that females showed a higher prevalence of widowhood (67.5 vs. 33.0%) and illiteracy (80.5 vs. 45.0%) than males. Illiterates outnumbered the other categories in both the sexes (45.0% and 80.5%). All those not living with spouse / children (19.3%) were widows / widowers, totally neglected by

Table 2: Distribution of elderly subjects by cognitive status and its determinants

Sociodemographic variable	Category	Cognitive impairment			Total no. (%)	Statistical significance
		No impairment no. (%)	Mild no. (%)	Moderate and severe no. (%)		
Sex MMSE score	Male	260 (65.0)	80 (20.0)	60 (15.0)	400 (100)	$\chi^2=11.09$ (S)
	Female	194 (48.5)	118 (29.5)	88 (22.0)	400 (100)	
	Total	454 (56.7)	198 (24.7)	148 (18.5)	800 (100)	
(Mean±SD)		Male: 24.63±4.49; Female: 22.02±3.92			23.32±4.4	Z=6.21 (S)
Age group (in years)	60 – 69	282 (72.3)	76 (19.7)	32 (08.2)	390 (100)	$\chi^2=51.0$ (S)
	70 – 79	128 (47.4)	86 (31.8)	56 (20.8)	270 (100)	
	≥ 80	44 (32.4)	36 (25.7)	60 (42.9)	140 (100)	
Literacy status	Illiterate	184 (36.6)	186 (37.1)	132 (26.3)	502 (100)	$\chi^2=102.75$ (S)
	Primary	126 (85.1)	10 (6.8)	12 (8.1)	148 (100)	
	Secondary	116 (95.1)	02 (1.6)	04 (3.3)	122 (100)	
	≥ Higher secondary	28 (100.0)	00 (0.0)	00 (0.0)	28 (100)	
Socioeconomic status	Upper	10 (62.5)	04 (25.0)	02 (12.5)	16 (100)	$\chi^2=38.4$ (S) S=Significant at 95% CI
	Middle	320 (69.3)	92 (19.9)	50 (10.8)	462 (100)	
	Lower and BPL	248 (38.5)	102 (31.7)	96 (29.8)	322 (100)	
	Total	454 (56.75)	198 (24.75)	148 (18.5)	800 (100)	

(N=800)

Table 3: Determinants of depression among study subjects

Sociodemographic variable	Category	Depression		Total no. (%)	Statistical significance
		Present no. %	Absent no. (%)		
Sex	Male	150 (37.5)	250 (62.5)	400 (100)	$\chi^2=14.49$ (S)
	Female	226 (56.5)	176 (43.5)	400 (100)	
Depression score (Mean±SD)		Males: 5.53±3.28 Females: 6.80±3.10		6.16±3.40	Z=3.97 (S*)
Age group (in years)	60 – 69	156 (40.0)	234 (60.0)	390 (100)	$\chi^2=6.16$ (S)
	70 – 79	144 (53.3)	126 (46.7)	270 (100)	
	≥80	76 (54.3)	64 (45.7)	140 (100)	
Socioeconomic status	Upper	04 (25.0)	12 (75.0)	16 (100)	$\chi^2=75.57$ (S)
	Middle	138 (29.9)	324 (70.1)	462 (100)	
	Lower + BPL	234 (72.7)	88 (27.3)	322 (100)	
Living arrangement	Alone	96 (87.3)	14 (12.7)	110 (100)	$\chi^2=61.53$ (S)
	With spouse / Children	260 (40.2)	394 (59.8)	646 (100)	
	With others	20 (45.5)	24 (54.5)	44 (100)	
Economic dependency	Independent	178 (47.3)	198 (52.3)	376 (100)	$\chi^2=7.75$ (S)
	Partially	62 (63.3)	36 (36.7)	98 (100)	
	Totally	136 (41.7)	190 (58.3)	326 (100)	
Dependency in ADL	Independent	336 (44.8)	414 (55.2)	750 (100)	$\chi^2=12.64$ (S)
	Dependent	40 (80.0)	10 (20.0)	50 (100)	
Literacy status	Illiterate	296 (58.9)	206 (41.1)	502 (100)	$\chi^2=42.79$ (S)
	Primary and secondary	74 (27.4)	196 (72.6)	270 (100)	
	≥ Higher secondary	06 (21.4)	22 (78.6)	28 (100)	
	Total	376 (47.0)	424 (53.0)	800 (100)	

S* - Significant at 1% level; S - Significant at 95% CI; (N=800)

Table 4: Distribution of elders based on sleep pattern and its determinants

Sociodemographic variable	Category	Sleep pattern		Total no. (%)	Statistical significance
		Normal no. (%)	Disturbed no. (%)		
Sex	Male	264 (67.0)	132 (33.0)	400 (100)	$\chi^2=1.56$ (NS)
	Female	244 (61.0)	156 (39.0)	400 (100)	
Age group (in years)	60 – 69	302 (77.4)	88 (22.6)	390 (100)	$\chi^2=37.2$ (S)
	70 – 79	156 (57.8)	114 (42.2)	270 (100)	
	≥ 80	54 (38.6)	86 (61.4)	140 (100)	
Socioeconomic status	Upper	14 (87.5)	02 (12.5)	16 (100)	$\chi^2=19.58$ (S)
	Middle	322 (69.7)	140 (30.3)	462 (100)	
	Lower and BPL	176 (54.7)	146 (45.3)	322 (100)	
Living arrangement	Alone	62 (56.4)	48 (43.6)	110 (100)	$\chi^2=12.82$ (S)
	With spouse / children	428 (66.3)	218 (33.7)	646 (100)	
	With others	22 (50.0)	22 (50.0)	44 (100)	
	Total	512 (64.0)	288 (36.0)	800 (100)	

NS - Not significant; S - Significant at 95% CI; (N=80); BPL - Below poverty level

their children. Subjects were categorized as financially 'independent' (getting pension or earning), 'partially dependent' (living with family with old age pension), and 'totally dependent' (no income). Less prevalence of economic dependency among subjects (53.0%) when compared with other studies,^[6-10] was because of the retired employees among them.

Regarding status in the family, the subjects were divided into 'neglected' (subjects living alone, totally neglected by children), 'just looked-after' (providing basic needs), 'looked-after well' (basic needs and medical care), and 'respected and consulted' (taking decisions or involving in family issues). Low prevalence of economic dependency was the reason for a lesser number of totally neglected subjects (13.75%) than in the studies by Elango S^[7] (38.0%) and Kishore S^[11] (55.8%). Financially, the totally dependent subjects were just looked after (15.8%), while the old age pensioners were being looked after well (41.2%). However, where only couples were present, the status was unaffected by economic dependency. Thus, economic dependency and living arrangements were the main factors deciding the status of the subject in the family.

The study showed a high prevalence of cognitive impairment (43.25%) than the studies by Singh et al.^[12] (5.0%) and Goswami et al.^[13] (18.03%), probably because of differences in the literacy status and composition of the subjects. Similar to Goswami et al.^[13] (23.7 vs. 12.2%), a high prevalence of impairment among females (51.5%) was due to the high illiteracy rate and more number of females in the ≥ 80 age group. Similar to the study by Goswami et al.^[13] (58.4%), prevalence and severity of impairment increased after 69 years of age (52.6%), especially in the ≥ 80 age group (42.9%), which showed higher prevalence than the two earlier age groups together (29.0%). High prevalence and severity

of impairment associated with low literacy status was seen in illiterates (63.6 and 26.3%) rather than in literates (19.8 and 11.4%). The high prevalence (61.5%) and severity (29.8%) of impairment in the lower class as compared to the other class subjects was because of more illiterates in the lower class. The high prevalence of impairment in the upper class than in the middle class was because of few subjects in the upper class.

Similar to studies by Jain^[6] (45.9%) and Venkoba Rao et al.^[14] (43.0%), high prevalence of depression was observed among the subjects (47.0%), as compared to the study by Singh et al.^[12] (18.0%), which was due to the high prevalence of widowhood, illiteracy, economic dependency, and poor status of the family. Increased prevalence and severity of depression among females was due to high prevalence of poor health, widowhood, economic dependency, and poor status of the family in females, similar to the study by Singh et al.^[12] (37.5 vs. 14.28%), Goswami et al.^[13] (63.2 vs. 44.5%), and Jain et al.^[7] (5.1 ± 8.26). Subjects showed high prevalence of depression, especially after 69 years, as seen by an increase of 13.3% in the 70 to 79 age group, due to increased widowhood, dependency, and health deterioration with age. Illiteracy, economic dependency, and loneliness were reasons for higher prevalence of depression in the lower class (72.7%) than in all the other classes put together (54.9%) and in illiterates (58.9%) rather than in literates (48.8%). A lower prevalence of depression among the financially totally dependent subjects (41.7%) as compared to the partially dependent ones (63.3%) might be because of proper care and security. The burden of earning despite poor health, loneliness, and negligence by children (regarding those living alone), were the main reasons for depression among independent subjects. High prevalence of depression (80.0%) among physically dependent subjects might be because of poor health and status of the family.

Prevalence of a disturbed sleep pattern of the study subjects (36.0%) differs from the studies of Singh CP.^[15] (3.5%), Singh^[16] (28.66%), Jain^[6] (43.9%), and Goswami *et al.*^[13] (58.36%) because of difference in the prevalence of factors responsible for depression, as was the case regarding the difference between male (33.0%) and female subjects (39.0%). A disturbed sleep pattern increased with age as shown by increase in its prevalence (19.0%) with age and with decreased social status (12.5 to 45.3%). Increased dependency and poor status of the family were reasons for this. Poor status of the family might be responsible for the disturbed sleep pattern among those living with family members. A normal sleep pattern in those living exclusively with spouse was because of security and good status of the family, the absence of which led to a disturbed sleep pattern among those living with others or living alone.

CONCLUSIONS

The study revealed a strong relation between sociodemographic factors like female sex, age, illiteracy, poverty, widowhood, loneliness, physical and financial dependency, poor status of the family, and the psychiatric morbidity of the subjects. Old age homes and separate clinics in the existing Primary Health Care (PHC) system, facilities for organizations working for the welfare of the aged and effective implementation of the ongoing schemes like old age pension, are some of the measures that need to be taken.

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